

Aphasia Insights!

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“Plasticity, then, in the wide sense of the word, means the possession of a structure weak enough to yield to an influence, but strong enough not to yield all at once. Organic matter, especially nervous tissue, seems endowed with a very extraordinary degree of plasticity of this sort...the phenomena of habit in living beings are due to the plasticity of the organic materials of which their bodies are composed.”*

The Principles of Psychology, 1890 (pp 105)

**William James
(January 11, 1842-August 26, 1910).**

Stroke Educator, Inc. is committed to educating the wider public about stroke and the 50 state *“Aim High for Aphasia!”* Aphasia Awareness Campaign.

Stroke Educator, Inc.
541 Domenico Circle
St. Augustine, FL 32086
207-798-1449
tbroussa@comcast.net
www.strokeeducator.com

The Metaphor of a Polygraph (duplicating device) with Plasticity Ink™

By Tom Broussard, Ph.D.

I had my first stroke in 2011 and could not read, write or speak well. I did get better in stages. The first stage was 11 months before I became fully aware of my deficits. The second stage took two years to be able to write useful communication. The third stage took another two years to be able to speak in front of an audience without cursing or crying (or both!).

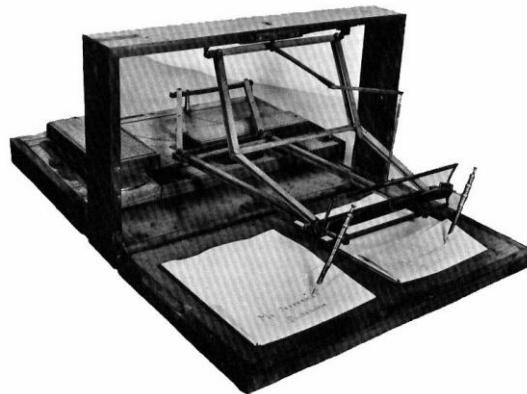
Since then, my mission is to help people with aphasia learn more about the “cause and effect” end product of activities (and thinking) as the *cause*, and notable improvement as the *effect*.

It is always difficult to learn about this thing called “plasticity” when you don’t know what you don’t know. It is not unlike the way it was when we were first told about “aphasia.” Most people with aphasia never knew anything about

aphasia until after their stroke. You never see a VW until you buy one and then they’re everywhere!

Learning about aphasia and recovery as a stroke survivor means learning about the underlying science, structure and lexicon of neuroscience and plasticity as well, and that takes time. William James (1842-1910) was the first one to use and describe “plasticity” in his book *The Principles of Psychology*. It is

1200 pages in two volumes and it took him 12 years to write it. I have read it...twice. As I said before, it takes time to learn about the brain.



One of the polygraphs used by Thomas Jefferson, a portable version. Wikimedia Commons.

I realized that I needed to find analogies and metaphors about plasticity that could provide the gist of plasticity without weathering James’ two volume tome.

I looked for one that would help explain the neurological process by which people with aphasia improve their language through an assortment of language activities. I discovered it while visiting Monticello, President Thomas Jefferson’s home in Charlottesville, VA.

President Thomas Jefferson used a letter-copying device called a polygraph (duplicating device), and copied tens of thousands of his letters. (The lie detector device is also called a polygraph).

His hand moved one pen that operated a second one which produced an amazing likeness of the original letter. His polygraph is located at Monticello.

Watching how the machine works, I realized that I had been looking for a (metaphorical) device that could let me understand how our language activities (including games) on the outside produce (copy, create, induce) new neural building blocks on the inside. The idea of the polygraph was the metaphorical key for understanding how plasticity works.

Intensive, consistent, and repetitive activities on the *outside* create neural copies in analogous form on the *inside*.

Once that is understood, people with aphasia can begin to understand the magic of plasticity and the allure of a *neural* polygraph with copying capacity.

It is the reason why so many language activities of all stripes (whether deemed therapeutic or not) are so beneficial for learning for all people, whether healthy or not.

It is in the nature of the brain. It is a direct link (although highly integrative) that brings in information and activities from the outside that once induced will

convert that energy into neural matter and the resultant learning.

Whatever is written on the *outside*, is written on the *inside*, with plasticity ink™.

Signed: *The Johnny Appleseed of Aphasia Awareness.*